

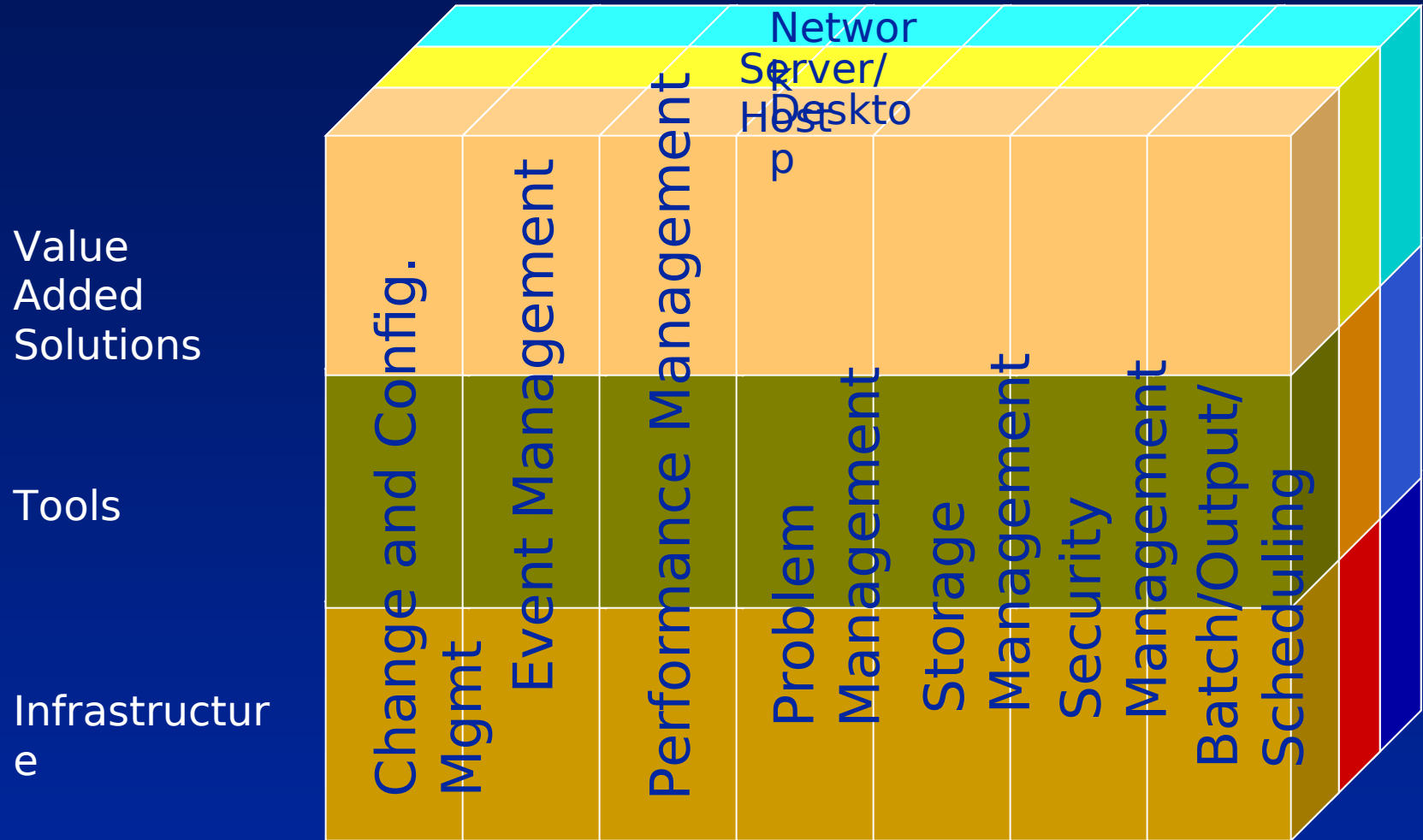
Overview of Windows Management Technologies

**Tim Kraus
Program Manager
Windows Management
Microsoft Corporation**

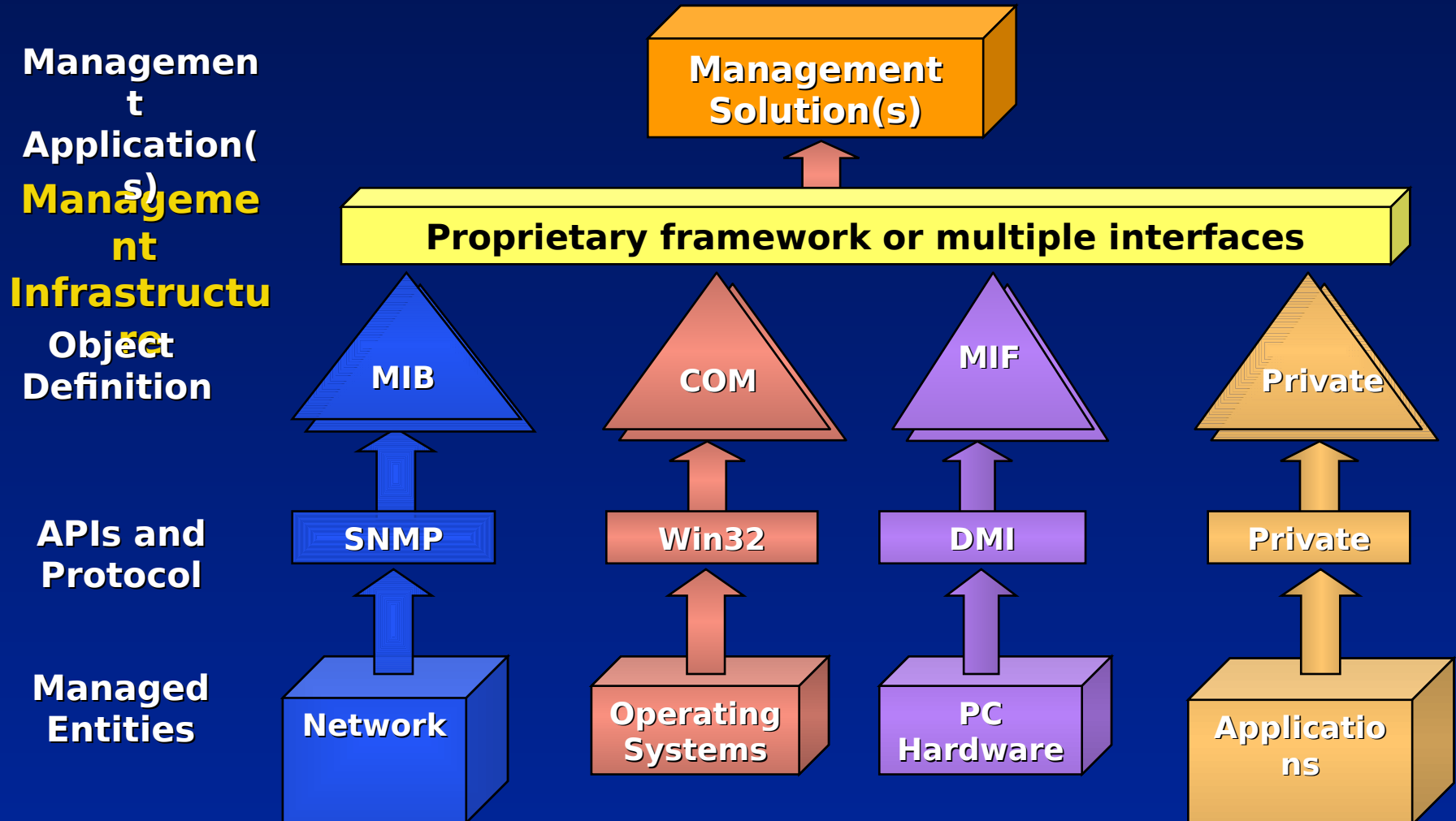
AGENDA

- **What is Management?**
- **What's Windows Management Instrumentation (WMI)?**
- **What about other Windows Management Technologies?**
- **What happened to Web Based Enterprise Management (WBEM)?**
- **Who cares about this, anyway?**

What is Management?



Why is this difficult?



What's WMI?

- **A common access to management information**
 - **FROM:**
 - **Line of Business Applications**
 - **Management Applications**
 - **Managed Elements**
 - **TO:**
 - **Management Applications**
 - **Managed Elements**

What's WMI (Cont)?

- **A common instrumentation model**
 - **Hardware**
 - **Network Elements**
 - **Line of Business Applications**
 - **Processes**

What Would the WMI Architecture for Management Look Like?

Value-Add Management Solutions

- Advanced management solutions
- Based on or integrated with Windows 2000 Management Infrastructure Services

Built-In Mgmt Functions

- Management solutions shipping with Windows 2000

Management Infrastructure Instrumentation

- Core enabling services within Windows 2000

How does this add value?

Value-Add Solutions:

- Enterprise Change/Config
- Heterogeneous Security
- End to end Performance
- Problem Tracking
- Enterprise Event Handling

Built-In Mgmt Functions:

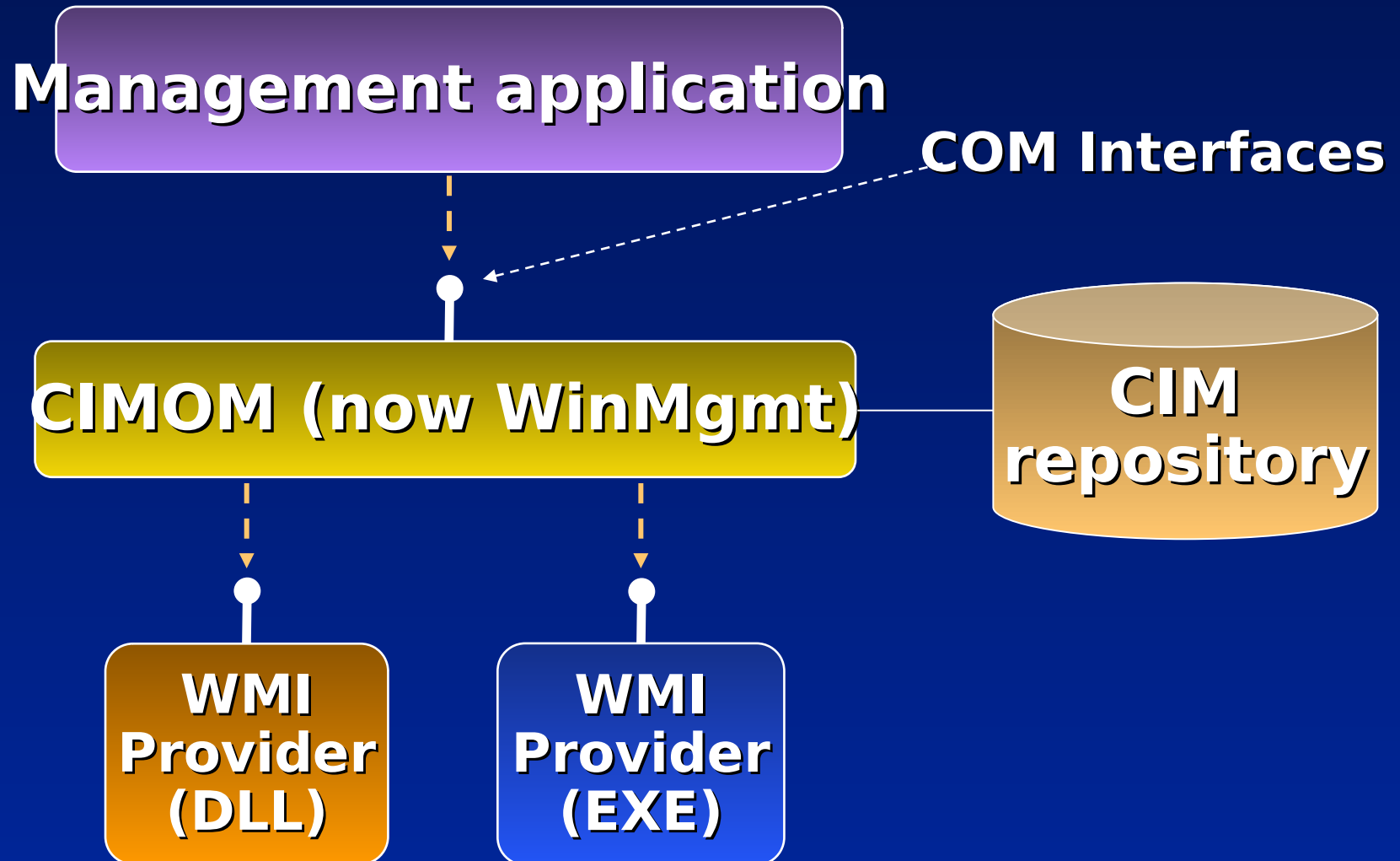
- Enterprise Storage and Configuration
- Security
- Storage

Infrastructure

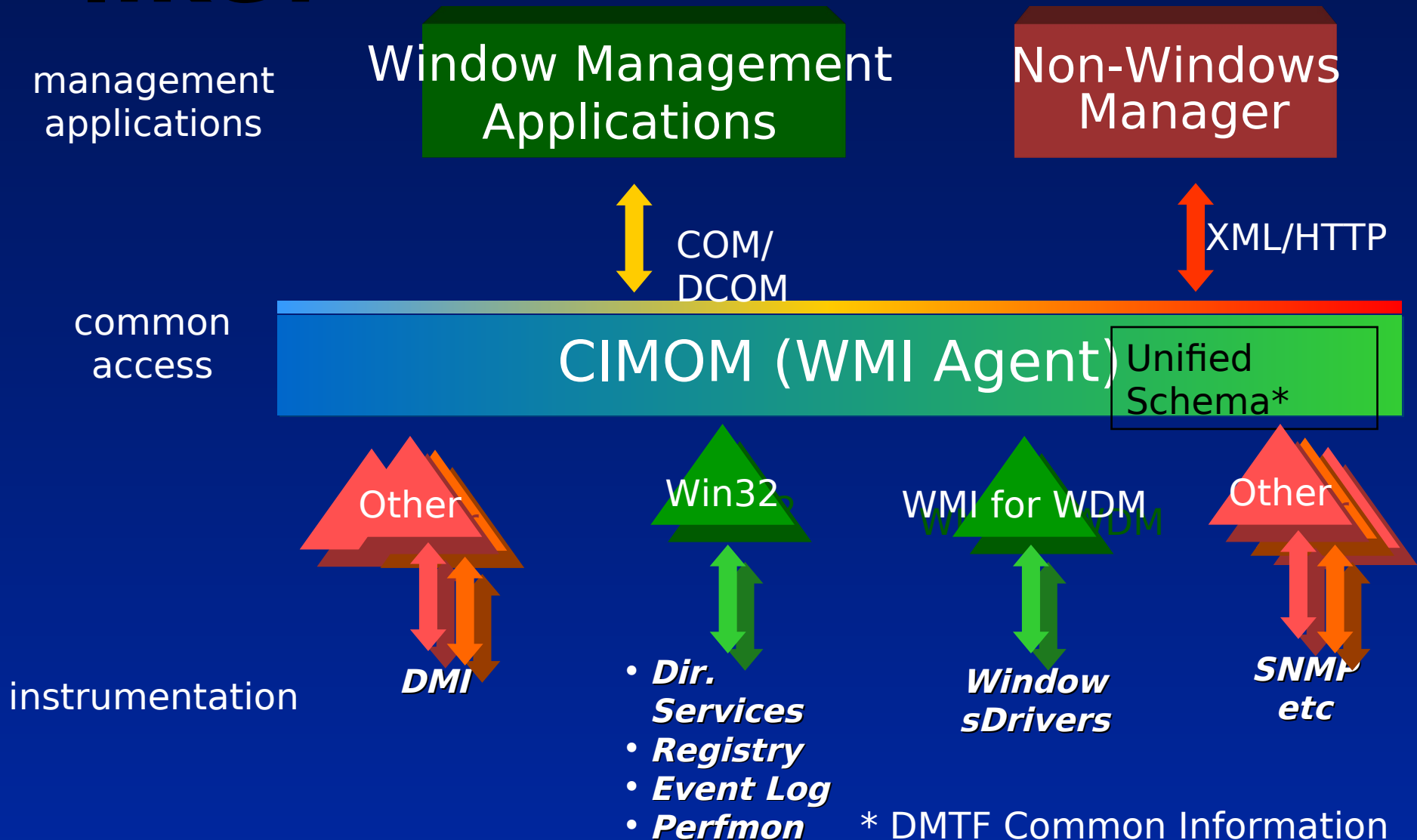
Services:

- Common UI presentation
- Common Automation
- Common instrumentation/access
- Common Policy & Location service
- Common integration/event/notification

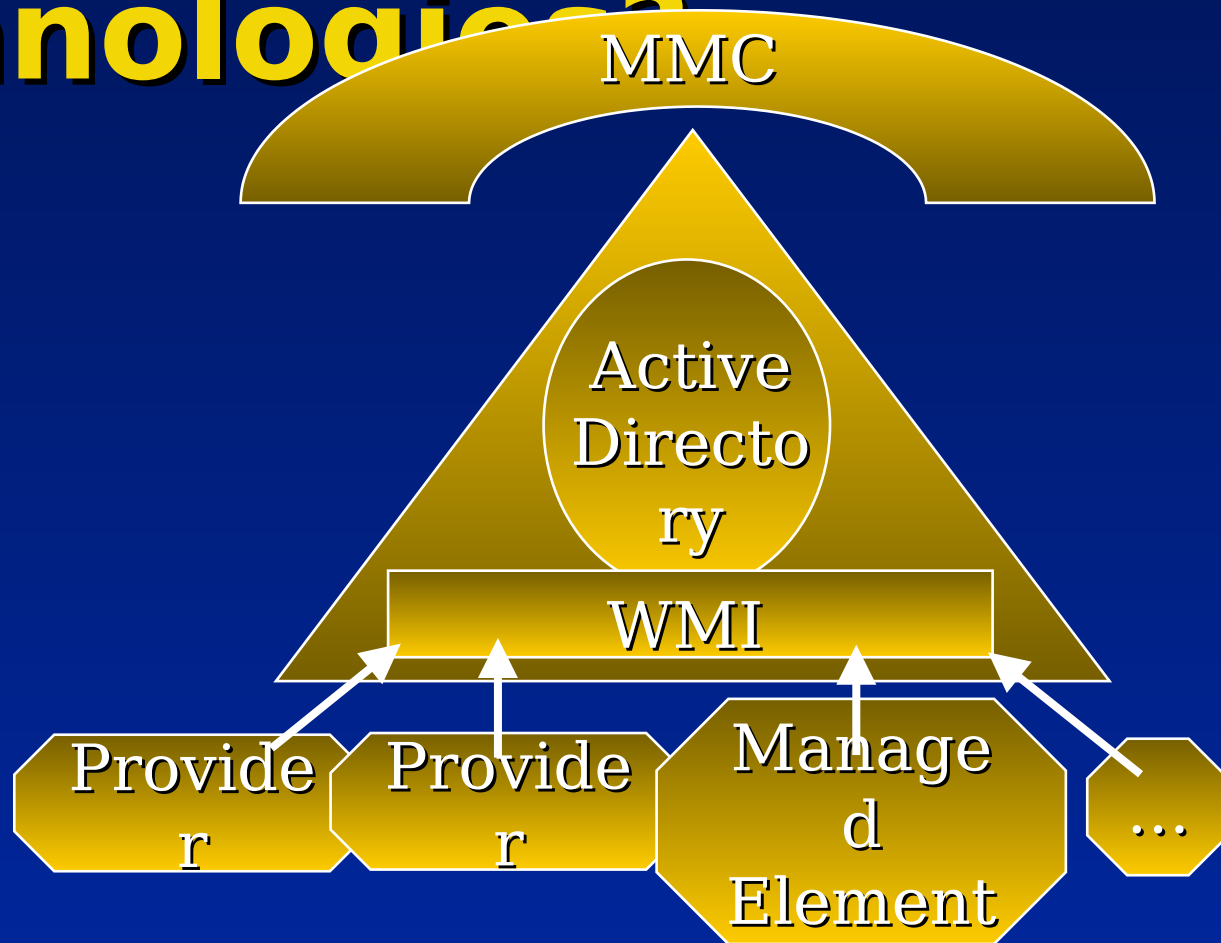
How does the Architecture Work?



What does WMI look like?



Other Microsoft Management Technologies?



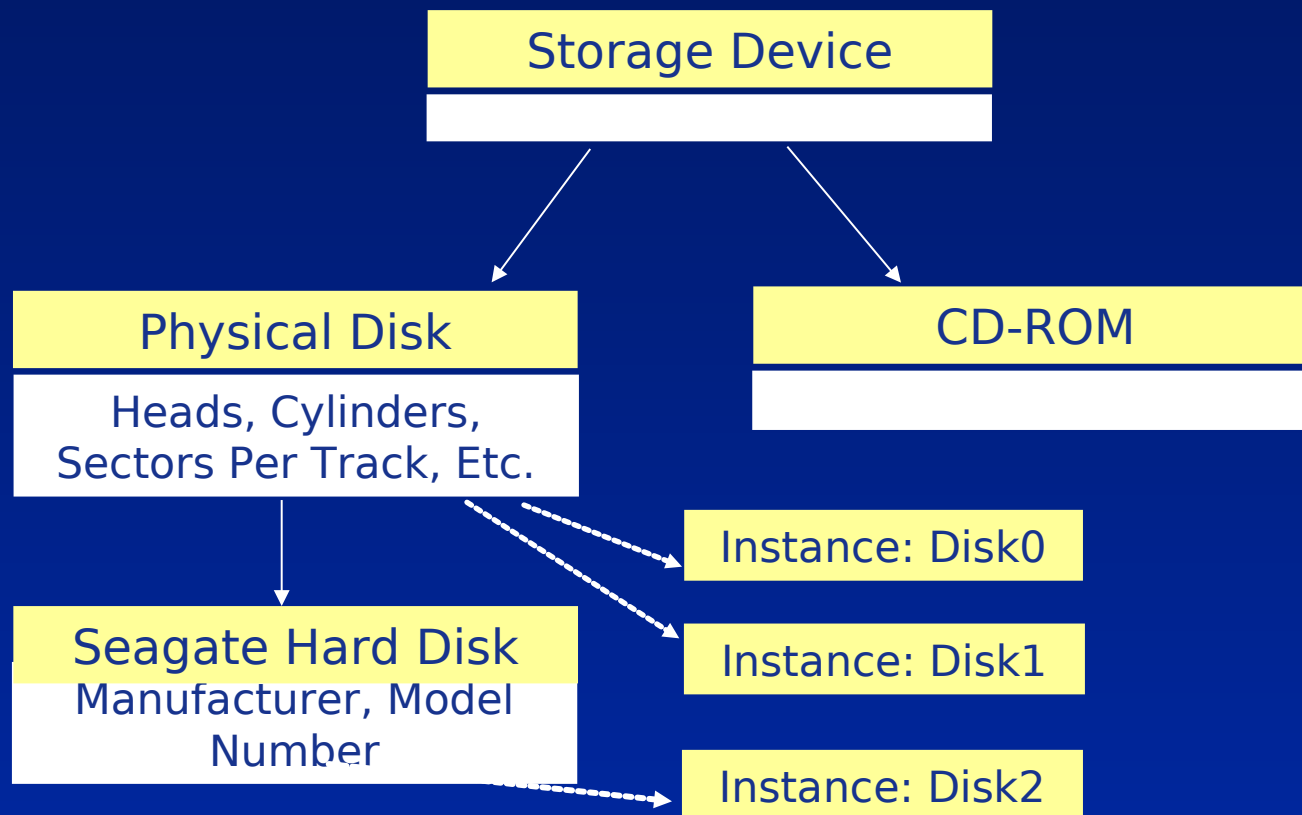
WMI Features

- **WinMgmt (formerly CIMOM) is the host process for CIM object providers**
(WinMgmt decouples Client and Provider. Providers are flexible; WinMgmt provides the navigation/browsing/location facilities and supports complex queries)
- **Most interesting hardware components and system settings have been exposed as CIM objects.**
(Disks, Netcard, Video, Mouse, Memory, Performance, SNMP objects and traps, etc. A tremendous amount of useful info has been uniformly exposed)
- **Event Support** (Events are CIM objects, too)

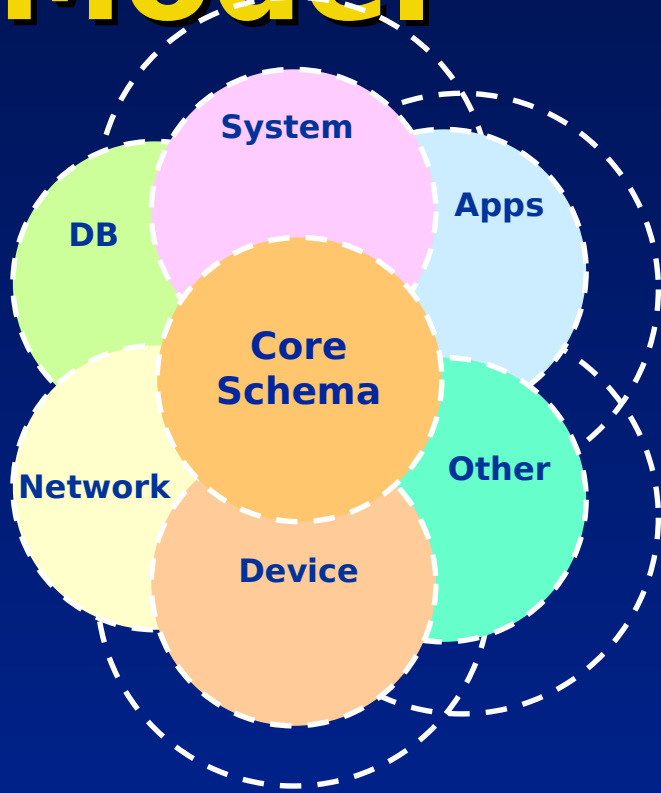
Common Information Model

General purpose object-oriented Data Model

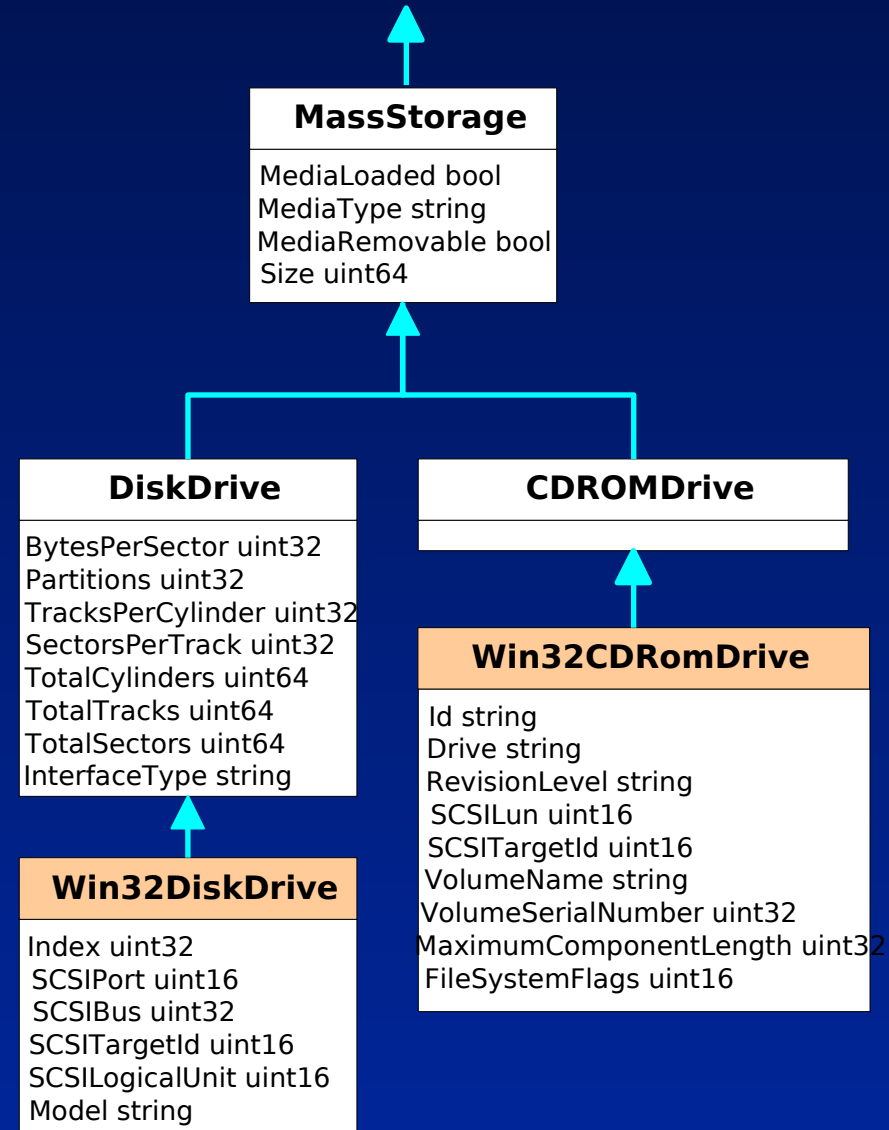
- **Classes, Properties, Instances**



Common Information Model



CIM v2 namespace
340 classes
1600 properties



CIM Deployment

- CIM is generic, could describe anything
- CIM distinguishes and models both *Classes* and *Instances*.
- CIM turns the machine into a miniature “Web”, where the sites are hardware/software components.
- Object relationships and links (“associations”) are central to the importance of CIM.

Microsoft WMI Providers

Built by WMI team

- Win32
- SNMP
- Registry
- NT Event log
- Performance Monitor
- Active Directory
- MSI
- WMI for WDM
 - SCSI, NDIS, Keyboard, Mouse, USB, Network protocol stack(s), ACPI, SMBIOS, Memory manager, Process/thread

Built by other teams

- SMS inventory, pkg distribution, SW installs,
- SMS healthmon
- Netmon monitors & experts
- DHCP server
- SNA Server
- Office 2000
- DMI (w/ Intel)
- MS L6

Partners shipping WMI-capable agents on W2K CD

- **BMC Software Patrol**
- **Computer Associates Real World Interface**
- **Compuware EcoScope**
- **Hewlett Packard ManageX**
- **Intel DMI Provider**
- **NetIQ AppManager**
- **Platinum Technology ProVision**
- **Siemens Nixdorf TransView SAX-PC**
- **Tivoli Enterprise**

Partners actively working with WMI project team

- BMC Software
- BlueCurve
- Compaq
- Computer Associates
- Compuware
- Dell
- Hewlett Packard
- Intel
- Network Associates
- Seagate Software
- Tidal Software

What does WMI promise?

- **Common access to management data across platforms**
 - **Can be native**
 - **Most likely will be through proxy services**
- **Simplification of management architecture**
 - **Reduce Stove Pipes**
 - **Unify programming interfaces**
- **Allows customers to integrate management applications**

What Happened to WBEM?

DMTF took WBEM as an initiative to create cross platform standard in June 1998



What Happened to WBEM?

Data Description

CIM

*Director
y*

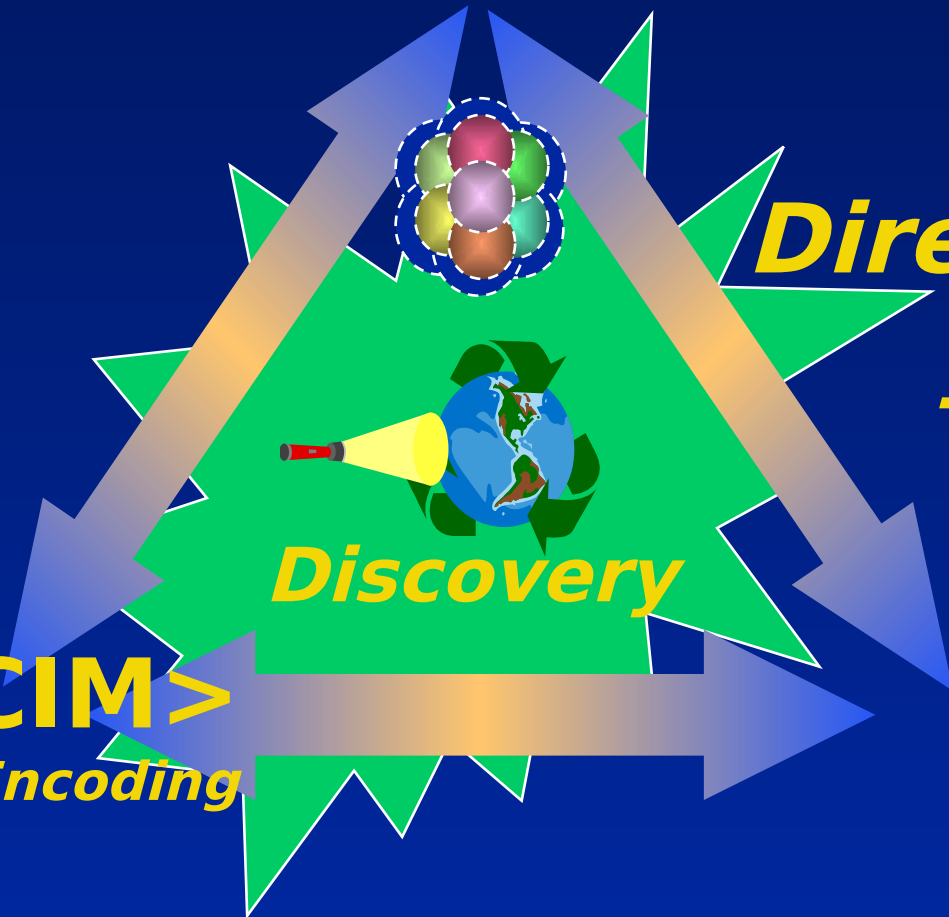
Discovery

</xmlCIM>

Transport Encoding

HTTP

Access



DMTF partnership

Board

Cisco (chair)
Compaq
HP
Intel
Microsoft
Novell
Sun
IBM Tivoli
NEC
Symantec
Dell
SCO

TDC

IBM Tivoli (chair)
Compaq
HP
Intel
Microsoft
Novell
Sun
Cisco

Apps measurement

HP(chair)

Service

Gartner(chair)

Systems & Devices

Microsoft(chair)

Applications

Tivoli(chair)

Network/DENs

Cisco(chair)

Database

BMC(chair)

User

IBM(chair)

Support

Intel(chair)

Who cares about this, anyway?

- Simplifies their environment TODAY! (WMI ships in WinNT 4/SP4, Win95, Win 98, Windows 2000 Beta 3)
- Gives them a criteria against which to evaluate management applications
- Lets them focus on higher value functions like service levels

- Standards Organizations

- DMTF
- OMG



Who cares about this, anyway?

- ISVs



Allows them to get out of the infrastructure business



Allows them to differentiate themselves by adding business value



- IHVs



Gives them a common mechanism for surfacing management data



➤ Helps them develop differentiation



Who cares about this, anyway?

- **Analysts**
 - **Promises a back-plane to unify management**
 - **Addresses data center, server, and desktop management issues**

Resources on the internet

www.microsoft.com

**WMI, Active Directory,
MMC, WSH Information**

WMI Software Developer Kit

WMI Tutorial

www.dmtf.org

CIM Specifications

Object Model Definition

CIM Tutorial